INSTALLATION INSTRUCTIONS
for the
Concept LR Mounted
Whip-style Delivery Unit

CE 0088

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Owner's Product Identification

(Information that you will need to provide for servicing - key information is highlighted)

Date of Purchase	***Serial Number***
Name of Owner / Facility / Department	***Model Number***
Name of Authorized Knight Dealer	Telephone # of Authorized Knight Dealer
Address of Authorized Knight Dealer	

IMPORTANT INFORMATION

Intended Use of Product

This product is intended to be used as a delivery system for doctor and assistant instrumentation during general dentistry examinations and procedures conducted by qualified dental professionals.

Authorized CE Representative

For countries in the CE union, any questions, incidents, or complaints must be directed to Midmark's Authorized CE representative listed below:

Promotal
22, Rue de St. Denis
53500 Ernee
France

Phone: 33-2-430-517-76
Fax: 33-2-430-569-10

Transportation / Storage Conditions

- Ambient Temperature Range ..... -22° to 140° F (-30° to 60°C)
- Relative Humidity ..... 10% to 90% (non-condensing)
- Atmospheric Pressure ..... 500hPa to 1060hPa (0.49atm to 1.05atm)

INSTALLATION INSTRUCTIONS for the *Concept LR Mounted Whip-style Delivery Unit*

SECTION I - REQUIREMENTS

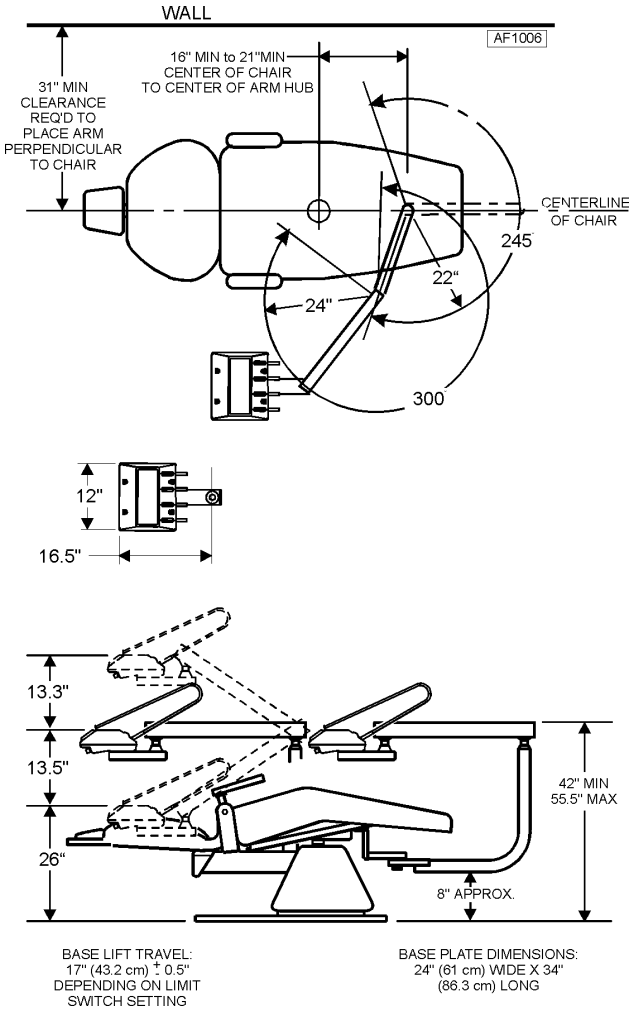

Figure 1

1. PHYSICAL REQUIREMENTS

Before installing, ensure that the physical requirements of the unit are met (See Figure 1).

2. ELECTRICAL REQUIREMENTS

Before connecting to the electrical supply, make certain that the circuit is protected by a 15-amp circuit breaker for 120-VAC models, or a 7.5-amp breaker for 240-VAC models. Ensure that all wiring is grounded and all electrical codes are observed.

WARNING - Potential shock hazard with possible personal injury. To reduce shock hazard, observe all electrical codes.

3. WATER SUPPLY REQUIREMENTS

A 1/2" pipe terminating with 1/2"NPT. Stub up 3/4" to 1" from the finished surface.

The static water pressure should be in the range of 30-50 psi. A suitable pressure reducing valve is essential for trouble free operation if the pressure exceeds the recommended range.

4. AIR SUPPLY REQUIREMENTS

A 1/2" pipe terminating with 1/2" NPT. Stub up 3/4" to 1" from the finished surface.

The static air pressure must be between 80-100 psi at the valve. A pressure reducer should be installed if the pressure exceeds 100 psi.

For maximum life and trouble free operation, the air supply must be clean and dry. It is recommended that a moisture separator and filter be installed as near the connection as possible and accessible for periodic cleaning.

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SECTION II - INSTALLATION

1. UNPACKING THE CARTONS

The Concept LR unit is shipped in a carton containing the following items:

- International instrument head and arm
- Unit arm assembly
- Optional equipment
- Small parts box
- Utilities connection box (J box), and installation instructions
- Installation instructions (this manual), and operator's manual

Check for signs of damage to the carton or to the contents. Make sure all items listed above are present. If there is any evidence of damage due to shipping or if any of the items are missing from the carton, notify the shipper at once. Be careful not to discard any small parts or instruction sheets with the packing material.

2. UTILITIES CONNECTION BOX (J BOX) INSTALLATION

To install the J box use the installation instructions supplied with the connection box. This plan contains important information needed for proper installation. This plan may also be used as a template to locate the utilities for connection. The installation of the utilities connection box should be performed by a qualified technician.

Please consider the following before beginning:

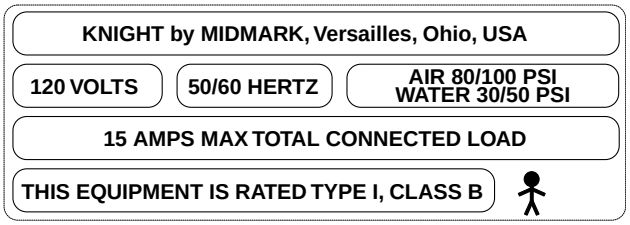
- The connection box can be installed anywhere in the room within the range of the 6 foot umbilical that will connect the box to the unit. Locate the box where the incoming service lines will not cause an obstruction.
- Air is the only service required unless a heated syringe or lighted handpieces are to be used.
- Waste, vacuum or water lines are not necessary unless separate devices requiring these services are to be used.
- The location of the incoming services on the installation plan are suggestions and can be altered to suit the situation.

3. ELECTRICAL CONNECTIONS TO THE CONNECTION BOX (J BOX)

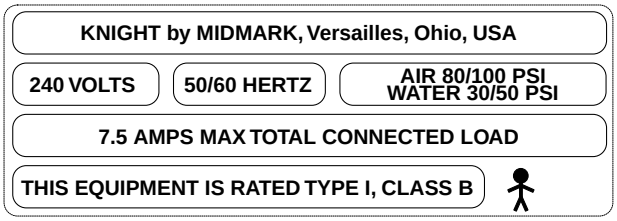
Figure 2 shows the typical arrangement for the electrical connections. The Accessory Power Chassis (APC) will be present if you have accessories such as a light, fiber optics, etc. The APC allows you to make your connections to a module without complicated wiring procedures. Specialized accessories other than a light will have their own instruction sheet in addition to this installation instruction.

DANGER: Turn off all electrical power at the power source before making primary electrical connections.

RATING FOR 120 VOLT UNIT


KNIGHT by MIDMARK, Versailles, Ohio, USA
120 VOLTS
50/60 HERTZ
AIR 80/100 PSI
WATER 30/50 PSI
15 AMPS MAX TOTAL CONNECTED LOAD
THIS EQUIPMENT IS RATED TYPE I, CLASS B

RATING FOR 240 VOLT UNIT


KNIGHT by MIDMARK, Versailles, Ohio, USA
240 VOLTS
50/60 HERTZ
AIR 80/100 PSI
WATER 30/50 PSI
7.5 AMPS MAX TOTAL CONNECTED LOAD
THIS EQUIPMENT IS RATED TYPE I, CLASS B

CONFORMS TO
UL STD. 544
CERTIFIED TO
CAN/CSA - C22.2
NO. 125-M1984

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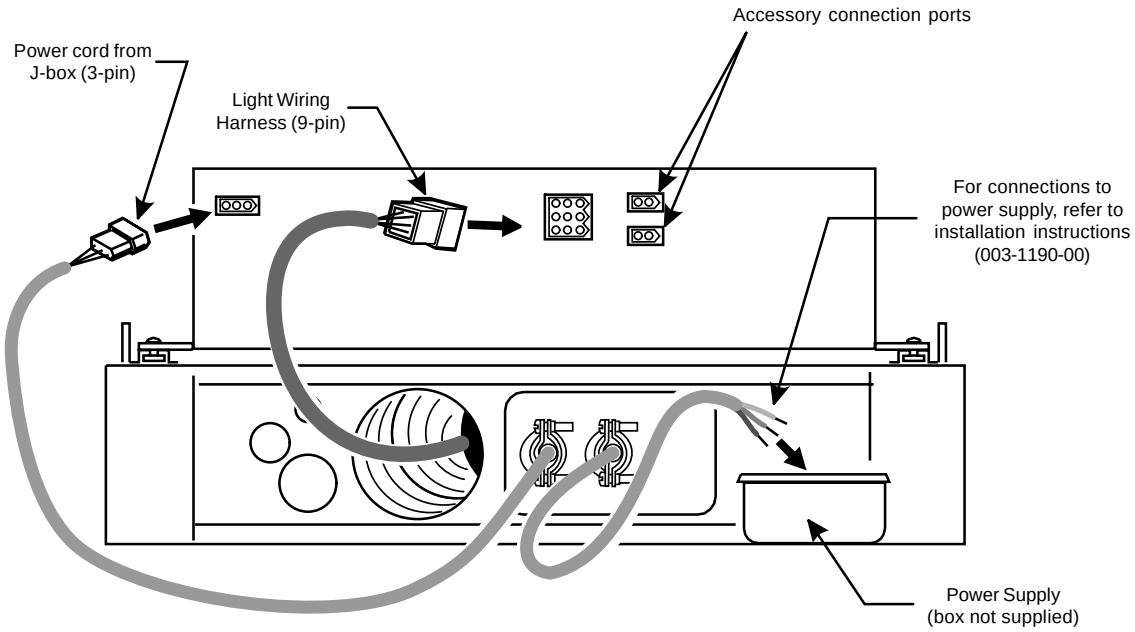
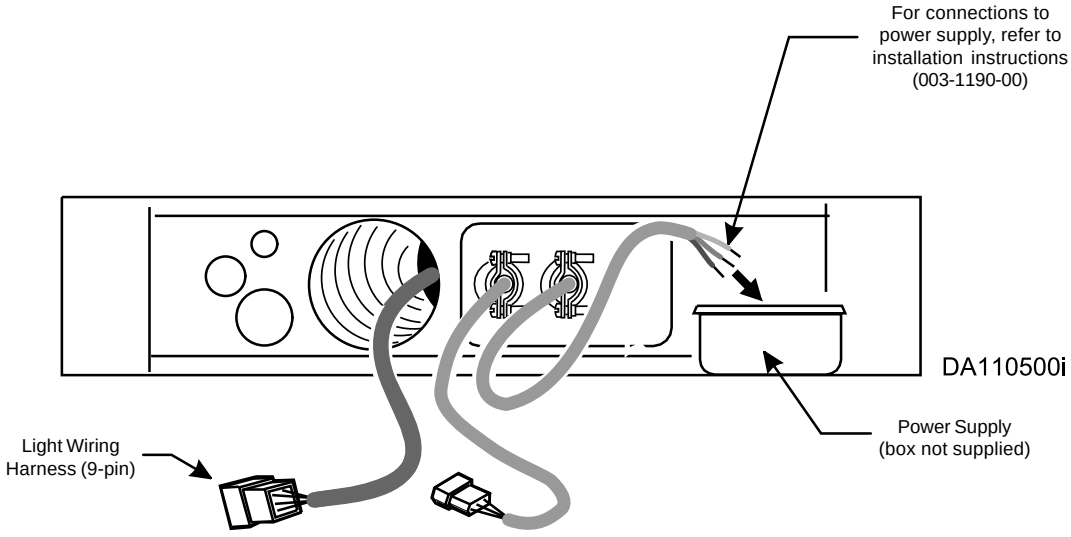
SECTION II - INSTALLATION


Accessory connection ports
Power cord from J-box (3-pin)
Light Wiring Harness (9-pin)
For connections to power supply, refer to installation instructions (003-1190-00)
Power Supply (box not supplied)

Electrical Connections in J-Box for Units with Accessory Power Chassis (APC)


For connections to power supply, refer to installation instructions (003-1190-00)
DA110500i
Power Supply (box not supplied)
Light Wiring Harness (9-pin)

Electrical Connections in J-Box for Units without Accessory Power Chassis (APC)

Figure 2

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SECTION II - INSTALLATION (CONT)

4. INSTALLING THE UNIT

Use the following procedure to mount the unit to the chair:

1. Remove the mounting bracket cover by loosening the four cover screws (See Figure 3).
2. Position the arm assembly on the mounting bracket and screw the 3/4" bolt and washer into the tapped hole. Tighten finger tight leaving the arm assembly lose enough to allow the leveling screw to be adjusted.
3. Place a level against the top portion of the unit arm, loosen or tighten the leveling screws to level the arm. Be sure to check the level in all directions by moving the level in all directions around the post.
4. Tighten the 3/4" bolt and check the level again. Repeat the leveling procedure if necessary

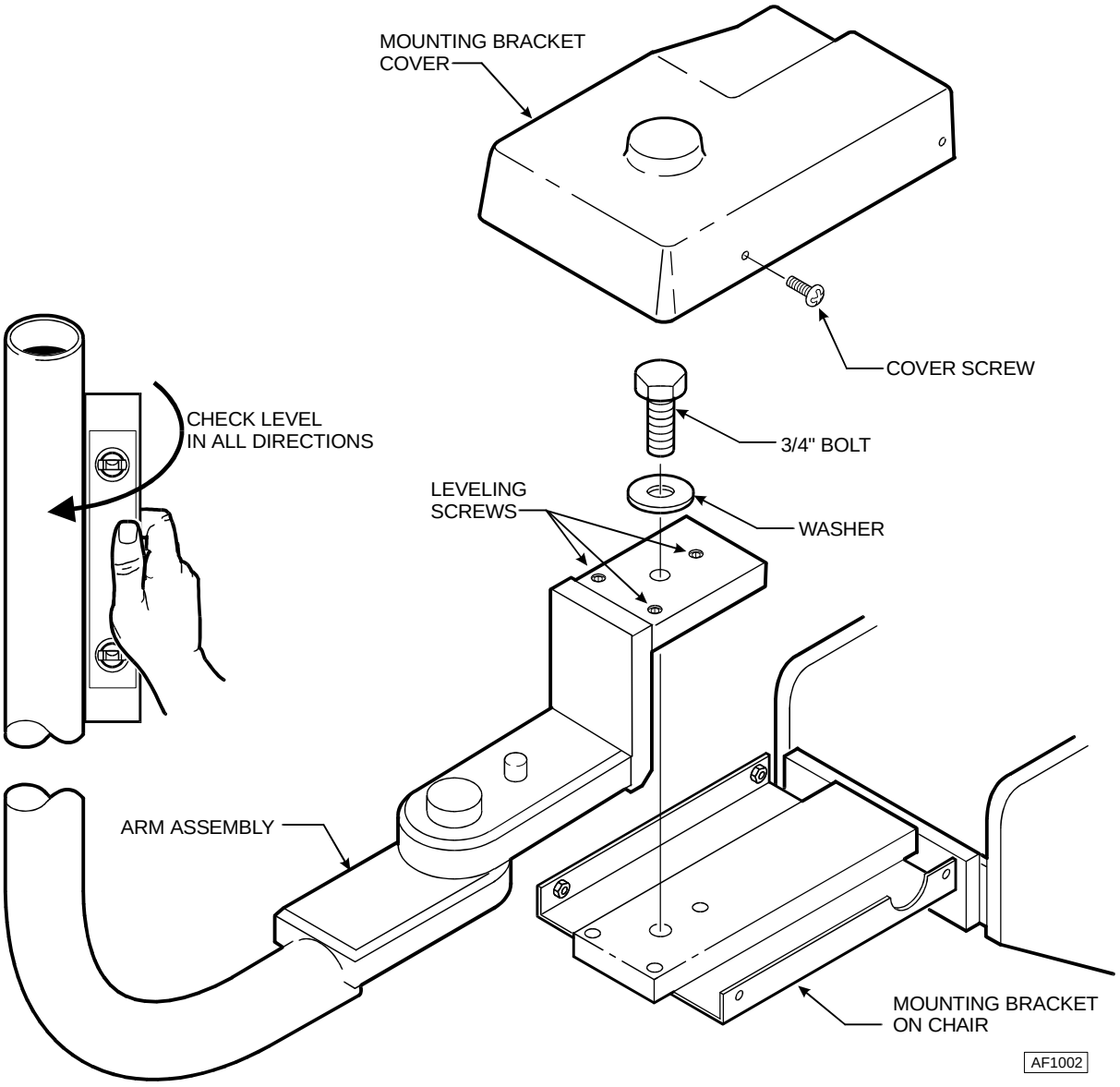

Figure 3

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SECTION II - INSTALLATION (CONT)

7. Carefully remove all packing material from the unit and read all information tags and labels.
8. Slide the umbilical into the “P” clamp with 2” extending beyond the clamp. Tighten the clamp to keep the umbilical from sliding out when the unit arm is rotated. (See Figure 4)
9. Make the tubing and wiring connections as shown in the diagrams (See Figure 5 & 6) and neatly secure with the clips provided. Replace the cover.
10. Check the arm assembly movement by swinging it from one side of the chair to the other. If more or less friction resistance is desired, loosen or tighten the three resistance set screws on the underside of the arm assembly.

WARNING: To avoid personal injury or equipment damage, do not attempt to adjust the bolt. It has been set to manufacturer's specifications.

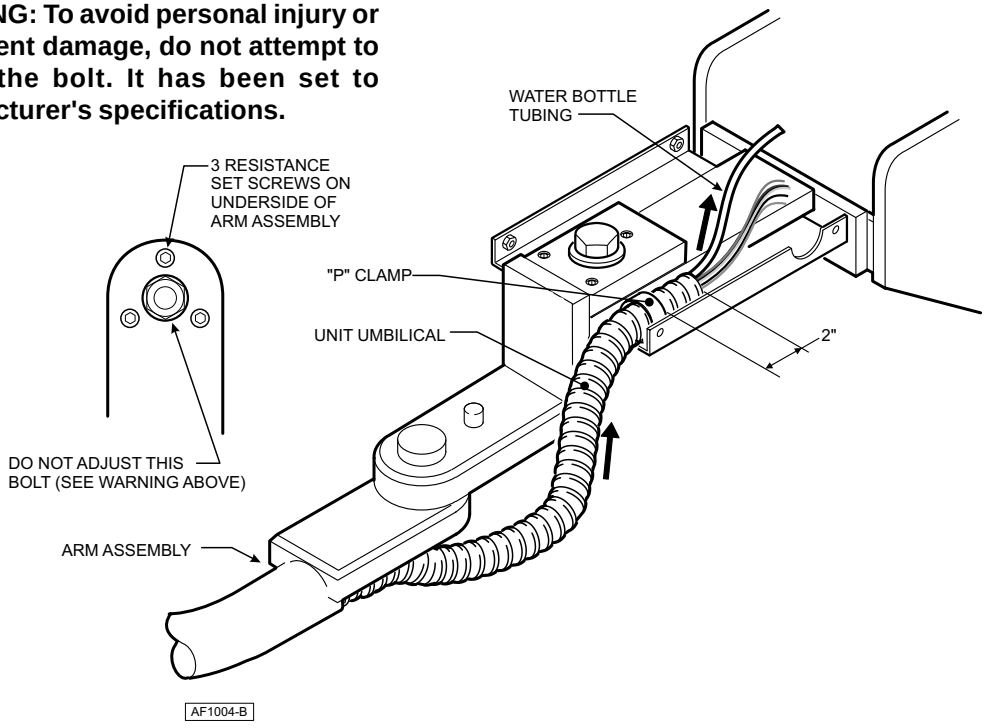

Figure 4

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SECTION II - INSTALLATION (CONT)

5. UMBILICAL TUBING CONNECTIONS

NON-ROTATION CHAIR (INTERNAL UMBILICAL)

Figure 5 shows the connections to be made in the mounting bracket area under the seat of a chair with an internal umbilical. This installation should be performed by a qualified technician.

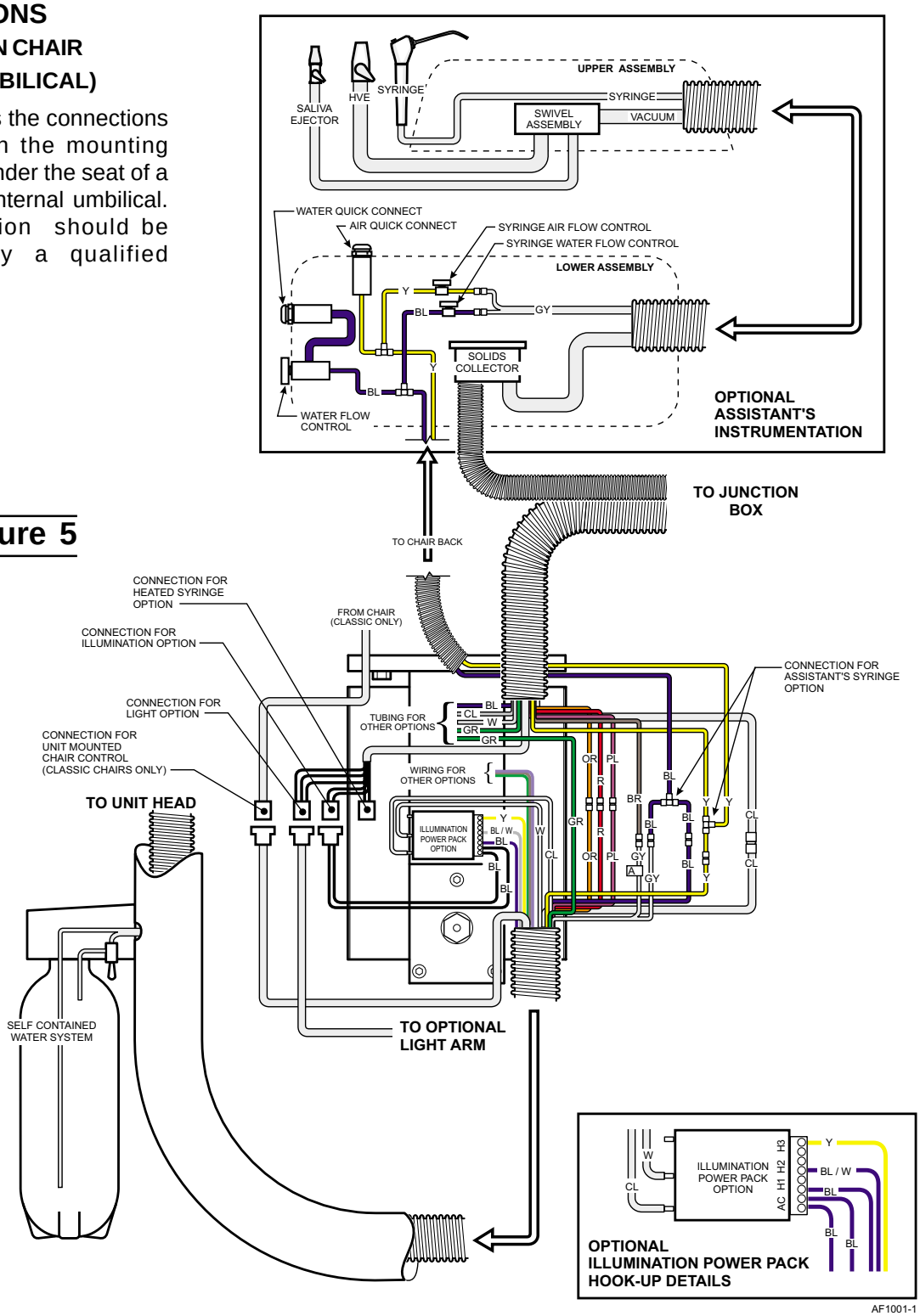

Figure 5

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SECTION II - INSTALLATION (CONT)

6. UMBILICAL TUBING CONNECTIONS

ROTATING CHAIR (EXTERNAL UMBILICAL)

Figure 6 shows the connections to be made in the mounting bracket area under the seat of a chair with an external umbilical. This installation should be performed by a qualified technician.

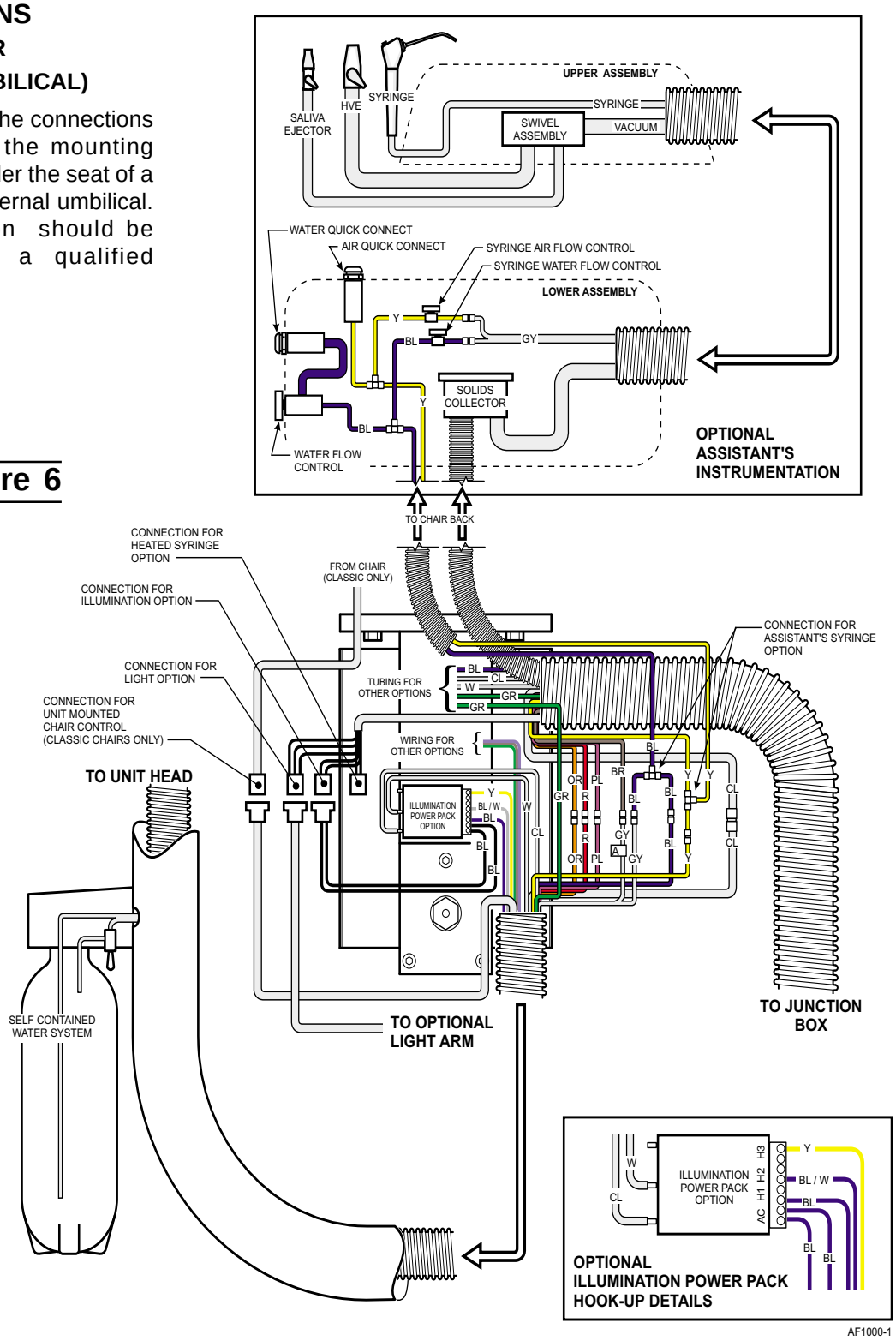

Figure 6

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SECTION II - INSTALLATION (CONT)

7. INSTALLING THE STOP ROTATION PINS

Install the stop rotation pins on the unit arm as follows:

1. Slide the trim ring up (See Figure 7).
2. Install two stop pins.
4. Slide the trim ring down.

CAUTION: The rotation stop pins must be installed to prevent the arm being rotated completely around several times, which could damage internal tubing.

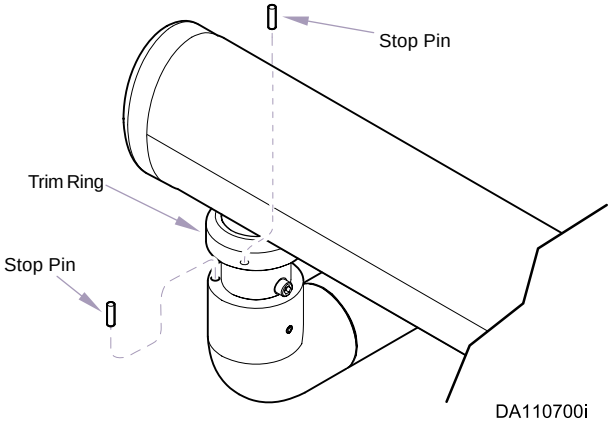

Figure 7

8. PREPARING THE FLEX ARM

The flex arm has a built in locking mechanism controlled by a toggle switch located on the underside of the instrument head. Refer to Figure 8 and use the following procedure to prepare this feature for use:

1. Remove the end cap.
2. Slide the flex arm cover back to expose the interior of the flex arm.
3. Remove the wire tie which will release the lock pawl from the latch block.
4. Check the vertical movement of the flex arm. The flex arm tension is adjusted at the factory and should not require adjustment. However if adjustment is desired, simply tighten the tension nut to increase tension or loosen the tension nut to decrease tension.
5. Slide the flex arm cover into position taking care to position the bottom cover in its track.
6. Replace the end cap.

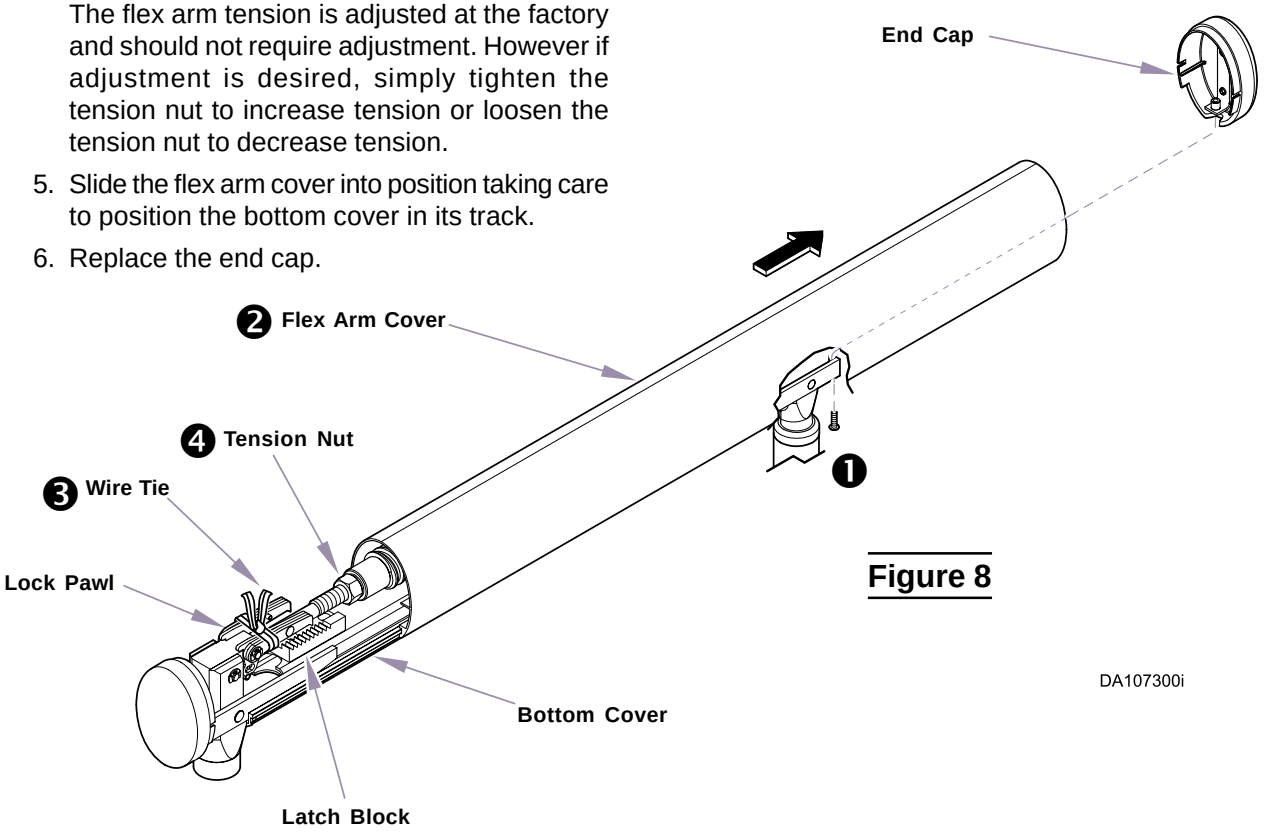

Figure 8

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SECTION II - INSTALLATION (CONT)

9. UMBILICAL TUBING CONNECTIONS TO THE UTILITIES CONNECTION BOX (J BOX)

Figure 9 shows the connections to be made inside the J box. Refer to installation instructions supplied with J-box. These instructions may be used as a template to locate the utilities for connection. The installation should be performed by a qualified technician.

NOTE: Six feet of umbilical is provided. This may be shortened to suit the installation requirements or personal preference.

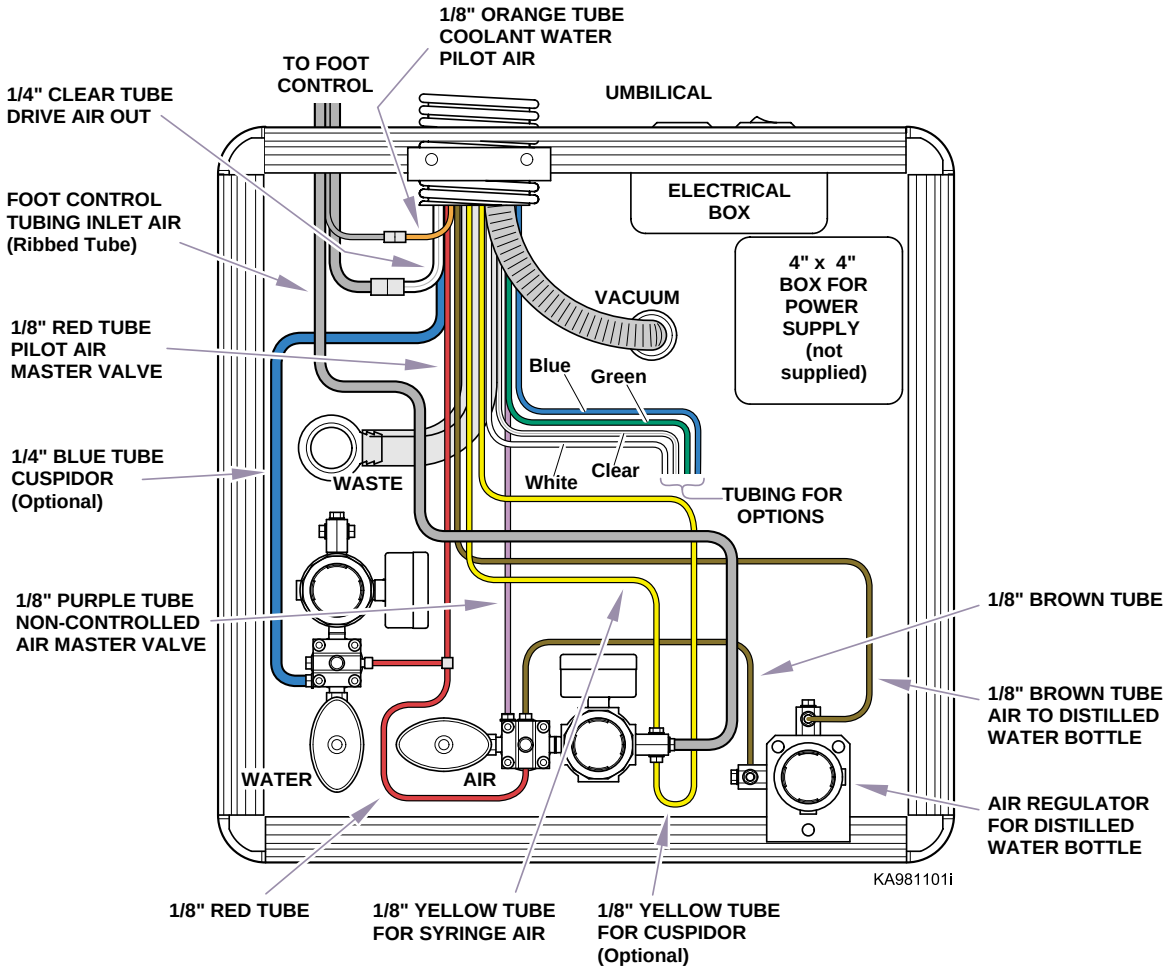

Figure 9

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SECTION III - CONTROLS

1. INTERNATIONAL HANDPIECE DELIVERY SYSTEM CONTROLS LOCATED ON THE LOWER FRONT OF THE INSTRUMENT HEAD

A complete set of handpiece and syringe adjustments are located for convenient use on the lower front of the international instrument head. All controls are labeled with symbols identifying their function. A description follows and their locations are identified below.

I VISUAL ON/OFF INDICATOR
When the red indicator is visible, the main air and water are turned on and the unit is ready for operation.

2 HANDPIECE PRESSURE GAGE
This gage indicates individual handpiece pressure when the handpiece is operating.

3 MAIN ON/OFF SWITCH
This switch turns the main air and water on or off. This function is indicated by the visual on/off indicator (item # 1)

4 5 6 HANDPIECE COOLANT WATER VOLUME
These knobs adjust the amount of coolant water to each respective handpiece.

7 COOLANT WATER ON/OFF
This adjustment conveniently turns the water on or off to any handpiece without effecting the water volume setting and controls the volume of coolant delivered to each handpiece.

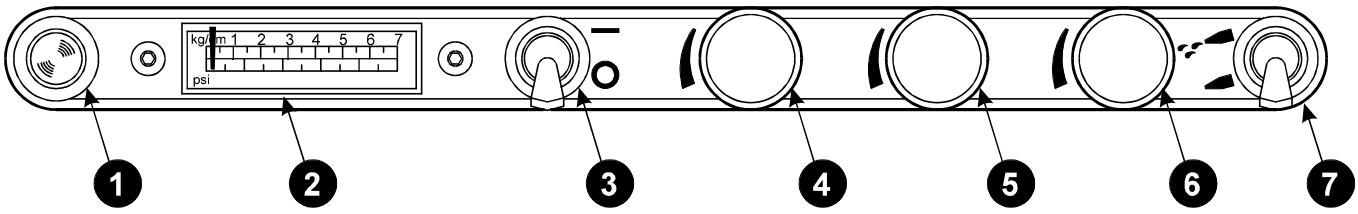

Figure 10

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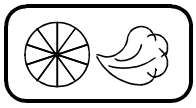
SECTION III - CONTROLS (CONT)

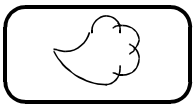
2. CONTROLS ON THE BOTTOM OF THE INSTRUMENT HEAD

These controls are provided to adjust the maximum handpiece operating pressure, coolant air spray pattern and syringe spray pattern (air and water volume). Adjust these controls to handpiece manufacturers specifications and/or personal preferences for the desired settings. All controls are labeled with symbols identifying their function as shown below.



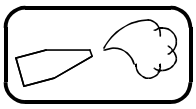
DRIVE AIR PRESSURE SETTING

An adjustment is provided for each handpiece. Use to set the maximum handpiece pressure indicated on the gage located on the lower front control panel. Refer to the manufacturer's handpiece specifications for the proper setting.



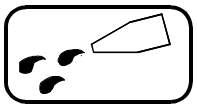
COOLANT AIR VOLUME ADJUSTMENT

This adjustment controls the volume of coolant air delivered to each handpiece and effects the spray pattern of air and water at the handpiece. If the handpiece has a coolant air connection itself, this adjustment may have no effect and can be completely shut off.



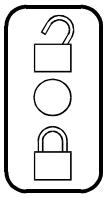
SYRINGE AIR VOLUME ADJUSTMENT

This adjustment controls the volume of air to the syringe and effects the air water spray pattern.



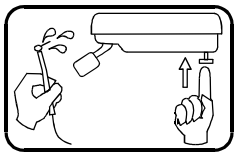
SYRINGE WATER VOLUME ADJUSTMENT

This adjustment controls the volume of water to the syringe and effects the water spray pattern.



ARM LOCK CONTROL

Located on the right side of the instrument head below the handle, this toggle switch control the locking mechanism in the unit flex arm.



HANDPIECE COOLANT WATER FLUSH BUTTON

This button controls the coolant water flush valve and is located on the left front underside of the delivery head.

3. OTHER CONTROLS AND INSTRUMENTS

WATER OUTLET AND FLOW CONTROL

Located on the front panel of the console, the water outlet provides water for hydrocolloid tubing or other accessories. The water is controlled by a flow control knob located next to the water outlet. Turning the knob clockwise will decreases water flow and counterclockwise increases the flow.

ASSISTANT'S INSTRUMENTATION

A saliva ejector, HVE and syringe are optional instrumentation on the unit. They are positioned on a movable holder that slides into the console or on the chair headrest.

WATER ON/OFF VALVE

Located on the foot control, this switch provides water for coolant spray to the handpiece when the switch is moved forward to the “On” position (toward blue dot) and the foot control is depressed (wet cutting). When the valve is in the “Off’ position, water will not be delivered to any handpiece.

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SECTION IV - PURGING AND TESTING THE SYSTEM

When the installation is complete, certain operational checks should be made. These checks serve three important purposes; to make sure the equipment is functioning properly, to clear the tubing of any foreign material and to bleed the air out of the water tubing.

1. Before attaching the handpieces, turn on the air, water and vacuum to the utilities connection box.
2. Open the shut-off valves in the utilities connection box.
3. Turn on the master valve lever on the International head.
4. Turn the coolant water and coolant air volume control adjustment knobs, located on the lower front of the International head, completely open.
5. Lift a handpiece hose forward from its resting position on the molded handpiece pad.
6. Depress the foot control to operate the coolant water and drive air for 30 seconds.
7. Depress the coolant water flush button on the underside of the International head to allow the water to flow for 30 seconds
8. Repeat this procedure with each handpiece hose.
9. Install the handpieces.
10. Set the coolant water and coolant air volume controls to the desired position.

SECTION V - FINAL CHECK LIST

When all the assembly and installation procedures are completed, the unit should be checked out in accordance with the following check list to ensure that assembly is complete and that all controls function properly.

☐ Check complete system for any air or water leaks.

☐ Check to make sure there is proper air and water flow to the handpieces.

☐ Check the International handpiece delivery system for proper function.

☐ Check the syringes for proper function and water flow.

☐ Make sure that the unit has been cleaned and that all dirt and fingerprints have been removed.

☐ Be sure the person who will operate the unit receives the Operator's Manual and any other appropriate information or instructions.

☐ If any optional equipment has been installed, make sure it is properly installed and functioning as intended.

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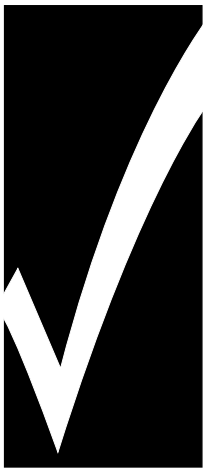
DECLARATION OF CONFORMITY



MIDMARK CORPORATION

Midmark Corporation declares that SW and S-21 Dental Units conforms to the applicable requirements of the Medical Device Directive 93/42/EEC, Annex V and VII.

Serial Numbers: UA1278, UW01032, UC0971, and UK0148 to present.

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October 18, 1999

TPW1768 Rev. C (12/00)

KA940600

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